A Glimpse of the Interior of a Telephone Exchange

Where the Hello Girl Feels the Pulse of a Great City In the Rush of Business

How "Central" Looks to the Outsider Who Views the Place for the First Time---The Perfect System Required to Manipulate the Thousands of Wires, and the Methods by Which the Operators Do Their Work.

"HELLO, Central!"

"Number, please?"

Many thousand times a day this dialogue is repeated, this little curtain raiser to a telphone call. It may be the prologue of a business conversation, or a few cheering words with an intimate friend; it may forerun a hurried summons for a doctor, or be the precursor of the sad news of death; it may mean a party at the theater, a pleasant night at reception or dance, or perchance, a whisper of love. But whatever the import of the message, whether it be of joy or gloom, business or pleasure, it ever begins with the oft-repeated "Hello, Central!"

And Central, what of her? What of the busy little operator who sits at her board, whose nimble fingers and quick brain weave with a web and woof of flexible, intertwining wires, like some emissary of Fate, a variegated pattern, many-toned with the lights and shadows of human life? Who is she, what is her work, and how is it done?

Indeed, her occupation is almost as a sealed book. Everybody uses the telephone in these days. Everybody is familiar with her ready reply, "Number, please?" And everybody, too, knows her sometimes vexatious "Busy!" and holds her to blame.

But beyond this, the average man's acquaintance with the interior of a telephone central does not go. If he has thought about it at all, the man in the street regards it as a place where all wires end and all calls center; where certain pleasant voiced young women answer his summons and secure for him the number he desires. Just how it is done he doesn't know; he is satisfied with the knowledge that, in some way or other, it is done.

A visit to the operating room of the main office in Washington of the Chesapeake and Potomac Telephone Company reveals a wonderful, busy little world. On the fifth floor of the company's building at Fourteenth and G Streets northwest, the wires leading into the central known as "Main" converge, and here at the switchboards nearly two-score young women are occupied every moment of the day, and all the night as well. Naturally, the daytime calls are greatest in number, and the day force exceeds that working in the hours of darkness. The telephone girl's work is real work; there is no play about it. From the moment she "jacks in" at her "position" until the time she is relieved, she has all her dexterous hands can accomplish. Idleness is not for her.

The telephone operator, as she is known officially, although the outside world styles her a "Hello Girl," sits with a receiver clasped by a headpiece to her ear, in a high-backed revolving chair at a switchboard that resembles something between a desk and an upright piano. Where the keys of the piano would be are a set of switches and a double row of "jacks"—electrically speaking, "plugs"—at each end of a wire, incased in a flexible rubber tubing. Immediately in front of her are thousands of tiny holes, honeycomb like, marking the termination of a subscriber's wire, and arranged in sets of one hundred each. Above are a cluster of little shutters, one hundred in number. Each board is divided, as was Gaul of old, into three parts, each part being termed a "position," and having an operator. In front of each young woman, even with her face, hangs a large mouthpiece.

These operators work in sets of threes, and each board is an exact counterpart of all the others in the room, with the exception that the subscribers who "call up" on that board are different. One hundred subscribers to a position is the maximum number, although it usually averages less. As each board represents the entire service of the office, and each of its three divisions, or positions, is in reach of all three operators, it will be seen that each operator has at her finger tips, for her one hundred "calls" every subscriber whose line terminates in that exchange.

Between each section of the board is a little incandescent bulb, called a "pilot lamp." Should a subscriber wish to call up a number he rings up central and takes the receiver off the hook. This action causes the pilot lamp to light, and one of the little shutters at the top of the board lifts up, showing the number of the 'phone on which the call was made. At once the operator thrusts one of the "jacks" into the hole marking the termination of the subscriber's wire. As she does this she throws a switch putting herself in communication with him, while at the same time the shutter falls. It is then she answeres "Number, please?"

Perhaps he replies "1101 Main." She at once picks up the opposite end of the jack, and, reaching over to the group marked 11, taps the wire with the plug. Perhaps 1101, whose wire ends on another board, is busy. If so, she will find out first before cutting in. As Mr. Conway, the central office manager expressed it: "It is like knocking at the office door of a busy man to see if he is in conversation."

If the subscriber is talking, the operator hears it, and at once answers "Busy." If not, she "jacks in," and by a push button sounds the call bell of No. 1101. The connection is made. It is quick work. Calls are coming in one, two, three at a time; the pilot lamp is almost continuously alight. The operator's hands fly here and there, to and fro, with lightning-like speed; the white rubber covered wires in front of her are tangled up in a most amazing manner.

Throughout the big room, where the boards are arranged on three sides in the shape of a letter U, there is a constant sound of voices, low toned, never silent. They mingle into a monotonous medley of human expression wherein no single word can be distinguished. Their vocabulary, for the time being, is a small one—a few set phrases, repeated over and over again as the day goes on. And ever the busy little white hands are throwing the shuttle-like jacks back and forth in the fantastic designs of the Human Comedy.

Should the subscriber call for a number not centering in Main—a number in East or West—then the process is different. She must call up the operator on the board where the trunk lines center, telling her to answer such and such a number. The trunk line operator merely connects the subscriber with the outside exchange, and there the call is answered precisely as before. In the same manner subscribers are connected with Baltimore and other portions of the territory controlled by the company.

Two monitors sit at their desks in the middle of the room where they can place themselves in connection with any operator's board and hear all that she says as well as watch all she does. In addition, the monitor keeps a tabulated list of new telephone subscribers, changes made by old ones, and a constantly revised index of all who use the service. Should a person be away for the summer or have changed the number of his phone, that fact is at once signified on the board by a red line drawn under the hole where the wire ends. Then the number of the subscriber, typewritten, is placed at each position. Should this number be asked for, the operator immediately turns the call over to the monitor, who at once looks up and supplies the needed information.

The operator at whose position terminate the wires of pay stations has even more to do than merely answering calls. She must make a record on a little card of each call—the number calling up, the number secured and the length of the conversation. The number plate, extending below the shutter, tells her the nature of the call. If yellow, it is a pay station; half yellow and half white, there are two pay stations on that wire, yellow with blue in the center, a station wherein an automatic phone is situated, and money must be dropped in the slot; red, a message rate subscriber. For the latter merely the number calling up and that called are recorded. In case of an automatic phone, five "buzzers" or muffled bells tell by their tones whether the coin deposited is a nickel, dime, quarter, half-dollar or dollar.

On the floor, always walking to and fro, from one board to another, are the supervisors, of whom there are four. Each has a receiver over her head, and here and there she "jacks in" at a board, overhearing what is said, giving advice or assistance wherever any is needed, and helping out the operator whenever the calls are coming in too fast. At the far end of the room sits the "check monitor" a young man who, from his desk, cuts in whenever he desires, and, listening, makes a record of calls, the subscriber calling and the one answering, and the length of time necessary to make a connection. These figures, with other data, are carefully set down, and the reports filed. These sheets show that the time required to answer a call and make the proper connection is from two to four seconds, or, on an average, three seconds each. It is quick work, and the supervision exercised, though strict, is needful in keeping the service up to the standard and is a large factor in its efficiency. An expert operator will answer between 115 and 130 calls in a minute.

When the beginner or student comes to the exchange to learn to be an operator she does little or nothing for the first week except to sit with a receiver bound over her head, behind some experienced operator, "jacked in" at her board, overhearing all she says, watching what she does, and repeating the answers herself until they grow mechanical. Many become proficient enough to take an easy position in two weeks, others do not become expert in two years, and others, never. As a rule, young women learn the business readily; the quicker they are to think and act at the same time, the easier they learn. One young woman who started in not long ago sat in at a position for a few hours when she had been in the office only a week, and did well at it.

No position is ever left unoccupied. When one operator goes to relieve another she "jacks in" first and is at the board herself before the other goes away. Not an instant of time is lost.

The company realizes that good operators are valuable possessions and looks after their comfort in many little ways. Although the operator's working day is nine hours, she has a luncheon time of half an hour and two rest periods of half an hour each. This time she may spend as she pleases—out in the air or in the rest room—"loafing room," the girls call it—which the company provides.

There is, besides, a kitchen and dining room, where at luncheon time coffee, tea, and cocoa, butter, etc., are provided free, although the young women must bring their own luncheons. Then, too, in case of illness or indisposition, is a "hospital," a room provided with easy chairs and lounges. It is kindness and business combined, and that is the very best business policy.

As the calls of the day vary in volume, the operators go to work at different hours. The first day force, relieving those who have worked through the night, reports at 7 o'clock and works until 4 p. m.; the second force works from 8 a. m. to 5 p. m.; the third from 9 a. m. to 6 p. m.; the fourth from 9:30 a. m. to 6:30 p. m. At noon a fifth force goes on duty, and remains at the boards until relieved by the night force at 9 o'clock. The company employes in this city 128 operators, of whom 100 are at the main central, 18 at East and 10 at West.

At its main station the system employed by the company is that known as the magnet. When the new building in Twelfth Street is completed the common battery system will be installed, whereby the number of calls answered by an operator in a minute will be increased and the service improved in many respects. By this system, as soon as the receiver is removed from the hook a light flashes up at the subscriber's number, and central answers. Again, when the call is ended and the receivers hung up, each light shows, thus informing central that the conversation is ended. She does not have to cut in and ask, "Are you through?" as she must now.

Operators like their employment, and though it is hard and sometimes trying, they find a certain fascination in it. It is said at the Washington office that no case of actual overwork has ever occurred there. Few occupations for women can boast of such a record.

And, indeed, there is a fascination in the work. Perhaps it lies in the clicking of the little shutters, the glowing of the pilot lamps, and the shuttles of jacks flying here and there while a pattern that is a part of the real life of the world grows into being beneath the touch of the deft white fingers.

The Operators.

The Kitchen.

The Operating Room.

Chief Operator.

SIGNIFICANCE OF CHRISTMAS IN ART.

THE birth of the Christ child time out of mind has been a theme that has inspired painters in all Christian countries and from the most primitive of the early Italians to the modern man of the twentieth century. His beauty, the tender solicitude of His mother, the incidents of the miracle of His nativity have all been fruitful subjects for brush and pencil. Many of these compositions remain masterpieces of the world's art; others, if they have not reached the very first rank, have at least demonstrated the earnestness and loving enthusiasm of men less endowed, but the story remains today most appealing and one to quicken the sensibilities of nearly all mankind.

For four or five centuries after the birth of Christ, little was done in a pictorial way. So strong was the reaction against paganism, the mere sense of personal beauty or esthetic decoration of any sort was frowned upon for the first 500 years or more of the Christian era, and it is in carvings on the ivory throne of the Bishop Maximian, now standing in the cathedral at Ravenna, that we find the first worthy representation of the life of the Saviour. Some mosaics are also in Ravenna in the Church of Saint Apollinaire Nuovo, twenty-two scenes taken from His life. Churches began building about this time and monasteries came into existence, great religious fervor manifesting itself everywhere. And with the architecture came the needs of decoration so that the painter was in demand, with the sculptor and the carver of wood, ivory and precious stones.

The painter was then the artisan whose work was mapped out for him by a council of priests and high dignitaries. Perhaps the earliest records of this time—about the tenth century—may be found at the Church of Saint George, at Oberzell in Germany, in a series of frescoes. Two centuries later is the date of the frescoes in four colors, at the Church of Vic, in the department of Indre et Loire, in France. In the medieval period came stained glass and illuminated manuscripts, and upon the latter men of the religious orders thought nothing of working for a whole lifetime. At the close of the thirteenth century, however, painting was the great art, and it superseded all others. Then it was that the Madonna of Cimabue was carried in triumph to its final resting place in the Church of Santa Maria Novella, in Florence.

And what a quaint conception this Byzantine-educated painter, Cimabue, had of the Christ; with much humanity and naive charm how beautifully he composed his group of the Child and Mother, with the adoring angels on either side. One can understand the enthusiasm of his townspeople who were moved to so honor his great work. Perhaps his pupil, Giotto, was even more naive in his notions of the great event, for his famous "Nativity," in the Arona Chapel, Padua, is a most primitive arrangement in a pictorial way, showing a rude shelter supported by four posts, the Virgin in white lying at full length gazing raptly at the Child, while little cherubs overhead are in the act of supplication, and to right are the wise men, St. Joseph being in the immediate foreground. The work is in the nature of a fresco on the walls.

This artist Cimabue has been called the father of Italian painting, but Italian painting had no father. It was the natural outcome of the groping by many men for an art expression. If the painters of the early renaissance were not so wholly pietistic in an art way, they were yet deeply imbued with religious notions, and they added to their pictures a broader sense of all the technical requirements. The Madonnas and the Christ pictures began to have a greater beauty of execution. In the pictures of Fra Filippo Lippi, both Mother and Child are drawn with tender sweetness and by Botticelli and Filippino there were painted pictures which remain today as beautiful types of infancy and maternity, distinctly human, emotional, and satisfying. The Filippo Madonna at the Uffizi is a veritable masterpiece and gave inspiration to the painters who followed him down to the present day.

There is a tradition that one of the earliest followers of Christ was a painter, and in the pictures of the primitive Dutch and Italian schools a not uncommon subject is St. Luke painting the Virgin and Child. It is interesting to note that not a few of our American painters have devoted much thought and time to religious subjects of which the Christmas happening has been the theme. John La Farge has a pair of panels on the Nativity of Christ, in the Church of the Incarnation, a beautiful conception full of dignity and power. Edwin Howland Blashfield's "Christmas Chimes," a large canvas, was shown at many of the exhibitions in recent years and has been the subject of many reproductions, while Elihu Vedder, Elliot Daingerfield, Ella Condie Lamb, Bryson Burroughs, Louise Coxe, Mary L. Macomber, Charles Sprague Pearce, and Will H. Low have all at one time or another turned their attention in this direction.

Modern French painters have been even more actively engaged in portraying the great event; but with rare exceptions the spirit of great piety has been lacking. Dagnan-Bouveret's Madonnas are among the greatest of the modern religious pictures, however, in which one may never for an instant mistake the seriousness of the artist, and the German, Fritz von Uhde, giving a modern realism to his canvasses, has portrayed the Child with its Mother in a way to provoke discussion frequently and admiration often, though his departures are so radical at times as to be something of a shock. The modern picture, however, rarely bears the singularly earnest stamp of those of the men of earlier times, when the artists labored as a matter of soul's conviction, giving to the work a deep abiding sense of piety, feeling a direct call to express through the medium of paint the earnestness of profound belief and reverence.